

**TOPBMS**

Official website: [www.cleverbms.com](http://www.cleverbms.com) ; Wechat: +8617841591535

Aliexpress website: <https://www.aliexpress.com/store/4687150>

Email: 66057580@qq.com; Skype ID: live:.cid.8a15dc87c5ffe40c

# Smart BMS 14S-24S 200A 300A 400A 500A 600A Bluetooth RS485 Modbus Ebike Ecar Inverter Solar

Please go to the website : [www.cleverbms.com](http://www.cleverbms.com) (or [www.topbms.cn](http://www.topbms.cn)) to download bluetooth APP and rs485 software for PC

**TOPBMS**

[www.topbms.cn](http://www.topbms.cn)

Email: [zhxiwangdianzi@126.com](mailto:zhxiwangdianzi@126.com)

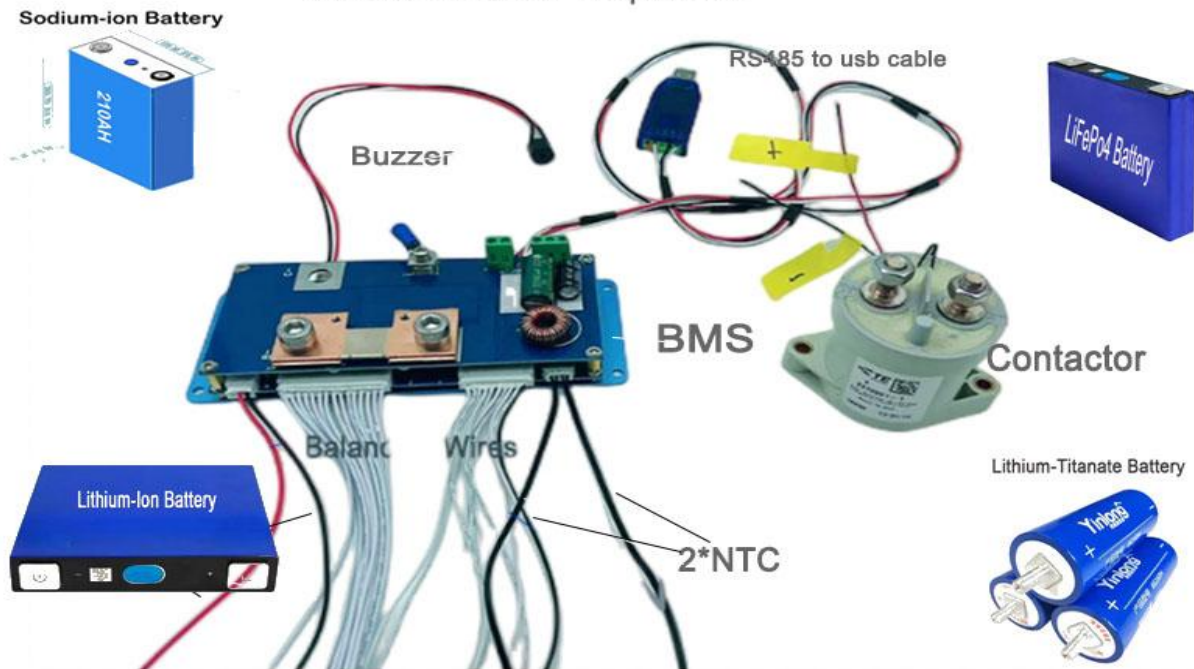
## Smart BMS 14S-24S with B/T+RS485

### Compatible with

Li-ion NMC Battery(3.7V)/Lifepo4 Battery(3.2V)/LTO Battery/(2.3V)/Sodium-ion Battery

Discharging/ Charging 200A 300A 400A 500A 600A

With Alarm Buzzer+Temp Sensor



**TOPBMS**

Official website: [www.cleverbms.com](http://www.cleverbms.com) ; Wechat: +8617841591535

Aliexpress website: <https://www.aliexpress.com/store/4687150>

Email: [66057580@qq.com](mailto:66057580@qq.com); Skype ID: live:.cid.8a15dc87c5ffe40c

**Smart BMS 14S-24S 200A 300A 400A 500A**

**600A with bluetooth /PC software ; This BMS is**

**compatible with Both Lithium-ion battery and**

**Lifepo4 Battery / lithium-titanate battery/Sodium**

**ion battery ; this bms is compatible with battery**

**14S ,15S ,16S,17S,18S,19S,20S,21S,22S,23S,**

**24S; you can set the parameters via Phone**

**application or PC software; This bms has rs485**

**communication; we can offer modbus**

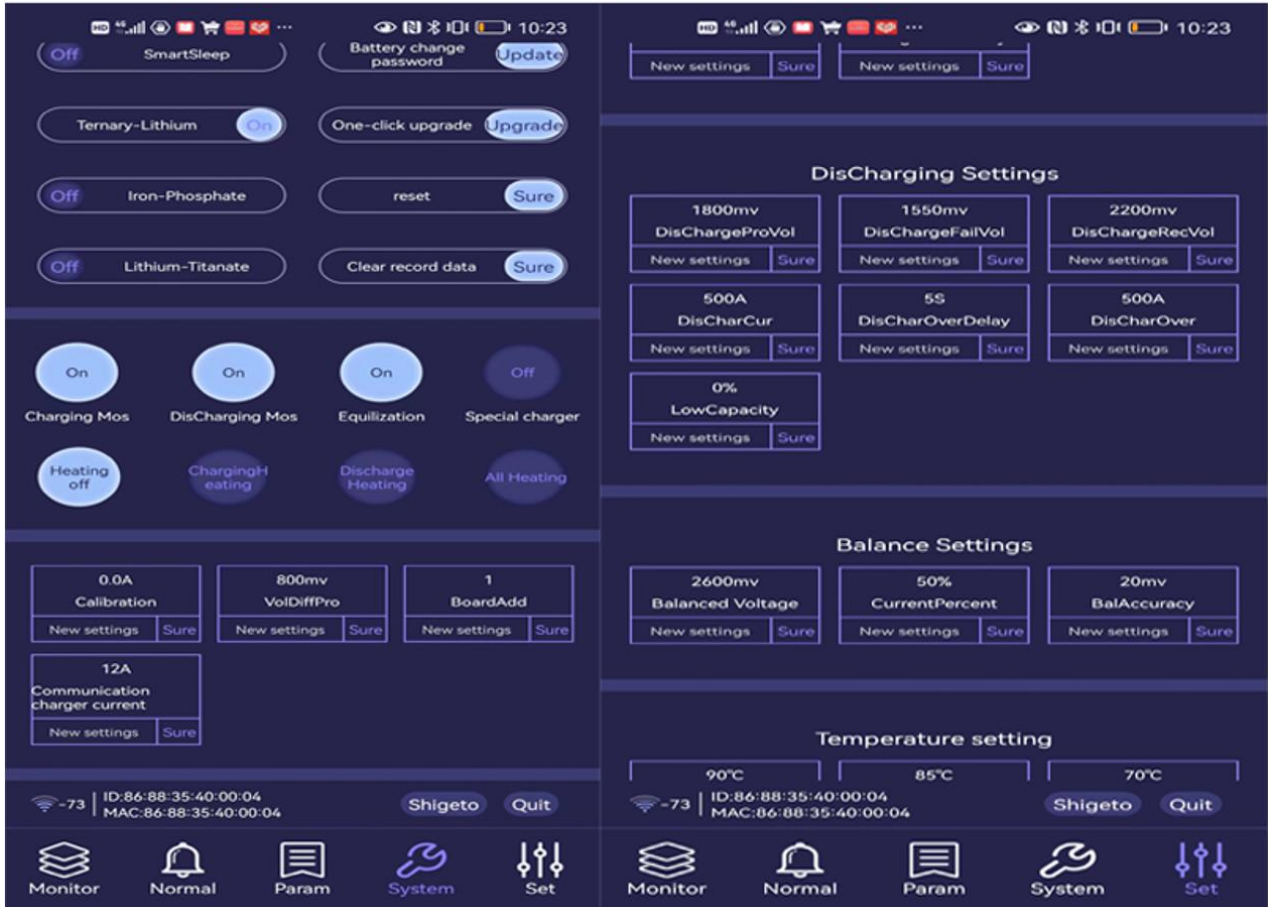
**protocols; please contact me via**

**wechat/whatsapp: +8617841591535; Email:**

**[zhxiwangdianzi@126.com](mailto:zhxiwangdianzi@126.com)**

# Phone APP

Password :123456



Note: Go to website([www.cleverbms.com](http://www.cleverbms.com)) to see video of Phone APP Instrction



Official website:www.cleverbms.com ; Wechat:+8617841591535

Aliexpress website: https://www.aliexpress.com/store/4687150

Email:66057580@qq.com; Skype ID: live:.cid.8a15dc87c5ffe40c

# PC Software of BMS talk to PC

BMS Lithium Battery Management System

PortNo: COM4  
DevNo: 1  
Connect  
English

Remain: 0 %  
Voltage: 0 V  
Current: 7 A

MacCode: 342589975  
BlueTooth: 26541C98068E  
Factory: 2012年12月31日

Monitor Alarm Param Normal DLoad Graph Update LeaseSet

### Battery Info

CapacitySet:	20 ah	CellSet:	14 C
CurrentPercent:	50 %	LowCapacity:	0 %
BalAccuracy:	20 mv	DisCharCapacity:	0 ah
BalanceVol:	3800 mv	CalibrationCapacity:	0 ah

### Battery Operation

Ternary-Lithium Iron-Phosphate Lithium-Titanate

ReStart Reset Modify

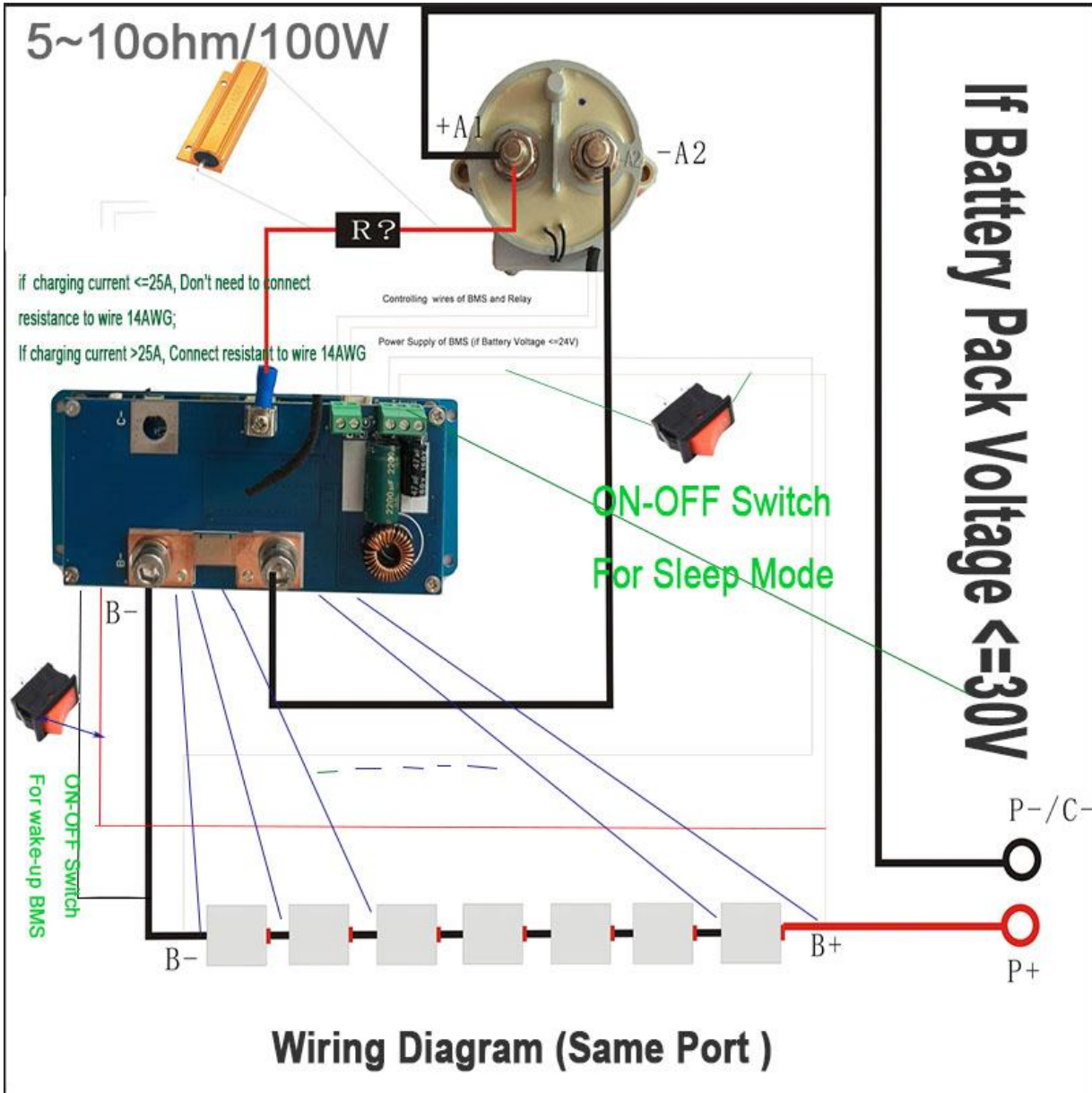
Charge MOS: Discharge MOS: Equalization: Special Charger:

HeaterClose: ChargeHeater: DisChargeHeater: AllHeater:

**四 Parameters Sheet**

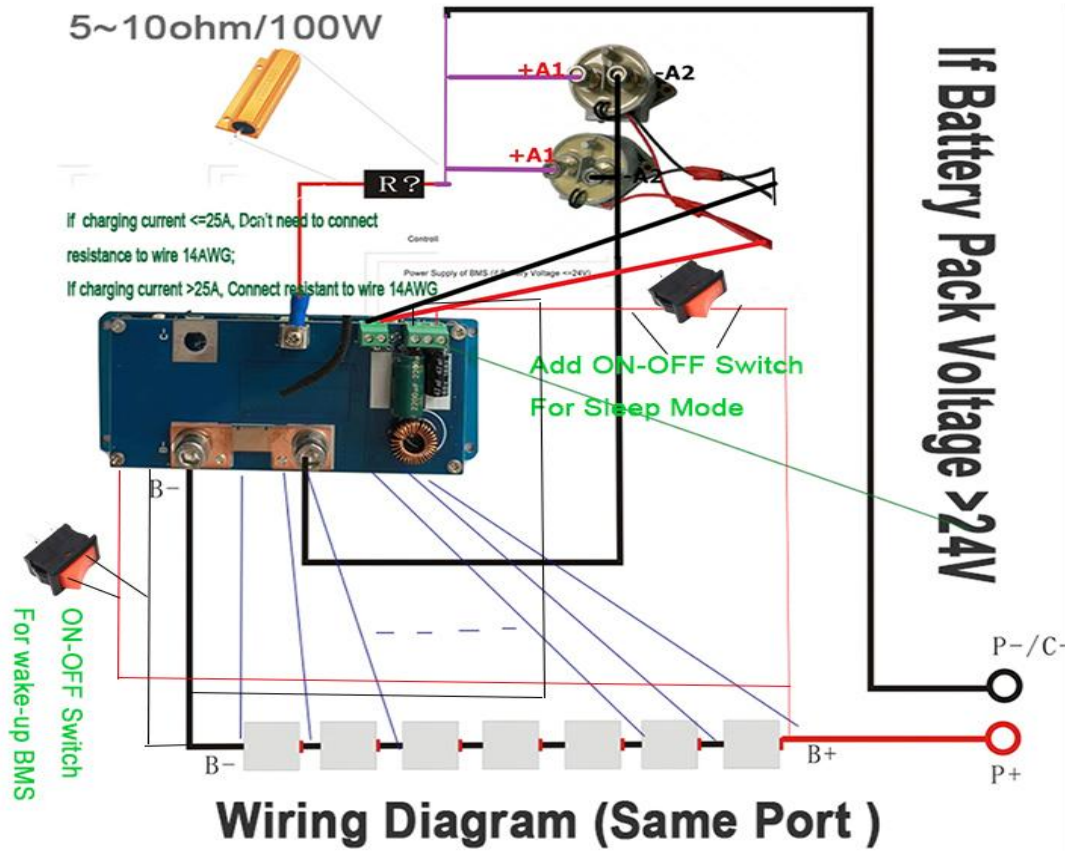
TOPBMS 3S-32S BMS 200A-500A						
L*W*H 165*65*35mm						
功能	项目	功能	Voltage			Comment
			Li-ion (3.7V)	LiFePo4 (3.2V)	LTO (2.3V)	
Over Voltage Protection	Batteries Type	1500mV-4500mV	4200mV	3650mV	2800mV	Level 1 protection Voltage
	Level 1 Charging Protection	1500mV-4500mV	4200mV	3650mV	2800mV	Level 2 Protection voltage shall be set larger than Level 1 protection Voltage
	Level 2 Charging Protection	2950mV-4800mV	4300mV	3750mV	2950mV	
	Over-charging Protection Delay Time	4S-10S				
	Over-charging Protection Recovery Voltage		4100mV	3550mV	2700mV	充电恢复设置电压必须小于充电保护电压 Over-charging Protection recovery Voltage shall be set smaller than Level 1 protection Voltage
Under Voltage Protection	Level 1 Discharging Protection	1500mV-4500mV	2750mV	2500mV	1800mV	
	Level 2 Discharging Protection		2500mV	2250mV	1600mV	Level 2 discharging protection shall be set smaller Level 1
	Over-discharging Protection Delay Time	4S-10S				
	Over-discharging Protection Recovery Voltage		3100mV	2900mV	2200mV	Over-discharging Protection Recovery Voltage shall be set larger than Level 1 Discharging Protection Voltage
High Temperature Protection	Power Module of BMS			90°C		
	Balancing Module of BMS			70°C		
				65°C		
High Temperature Protection Recovery	Power Module of BMS			85°C		
	Balancing Module of BMS			65°C		
	Batteries			60°C		
Low Temperature Protection		-30degree Max				MANUAL SET
Low Temperature Protection Recovery		-10degree Max				MANUAL SET
Current	Charging Current	0-500A				For example :If you order bms 40A , you can set the max value of charging current to 40A
	Continuous discharging current	0-500A				For example :If you order bms 40A , you can set the max value of discharging current to 40A
	Peak discharging current	600-1500A				For example :If you order bms 40A , you can set the max value of peak current to 120A
Balancing	Balancing start Volt	1000mV-4300mV	4100mV	3400mV	2600mV	
	Voltage Diff	1-30mV	20mV	20mV	20mV	
	Balancing Current	2-40mA	40mA	40mA	40mA	
Voltage acquisition resolution		5mv				
Temp Acquisition Tolerance		1-5%				
SOC Acquisition Tolerance		1-10%				
BMS Communication	Bluetooth					
	485-1					The port for charger with RS485
	485-2					The port for PC
	CAN					Not Applicable
Consumption	BMS +Bluetooth	2.5mA				
	BMS+CAN	7.5mA				
	Sleep Mode	50uA				
供电		20V-150V				电池组供电

# 1 >. Wiring Diagram (200A/300A/400A)





## Wring Diagram Of BMS With 2 Relays





**TOPBMS**

Official website: [www.cleverbms.com](http://www.cleverbms.com) ; Wechat: +8617841591535

Aliexpress website: <https://www.aliexpress.com/store/4687150>

Email: 66057580@qq.com; Skype ID: live:.cid.8a15dc87c5ffe40c

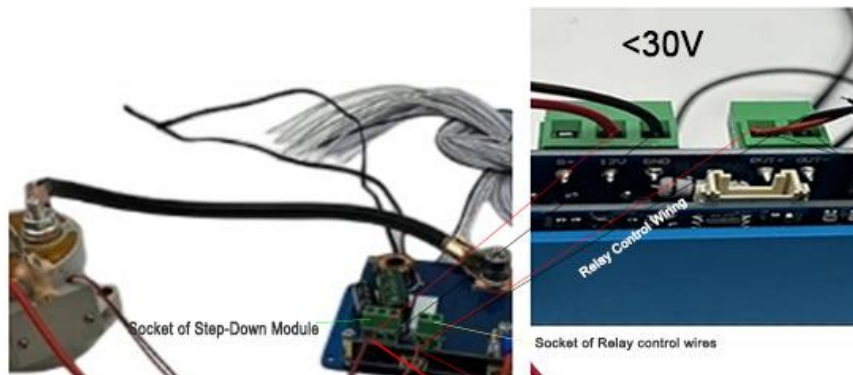
**TOPBMS**

wechat/whatsapp: +8617841591535

## How to Built-In DC-DC Converter Wire :

If Nominal Voltage of batteries pack  $\leq 30V$ ;

Wires of DCDC go to the plus and minus of entire batteries



If Nominal Voltage of batteries pack  $>30V$ ;

Wires of DCDC go to the Plus of entire batteries



**RELAY**

**TOPBMS**

Official website: [www.cleverbms.com](http://www.cleverbms.com) ; Wechat: +8617841591535

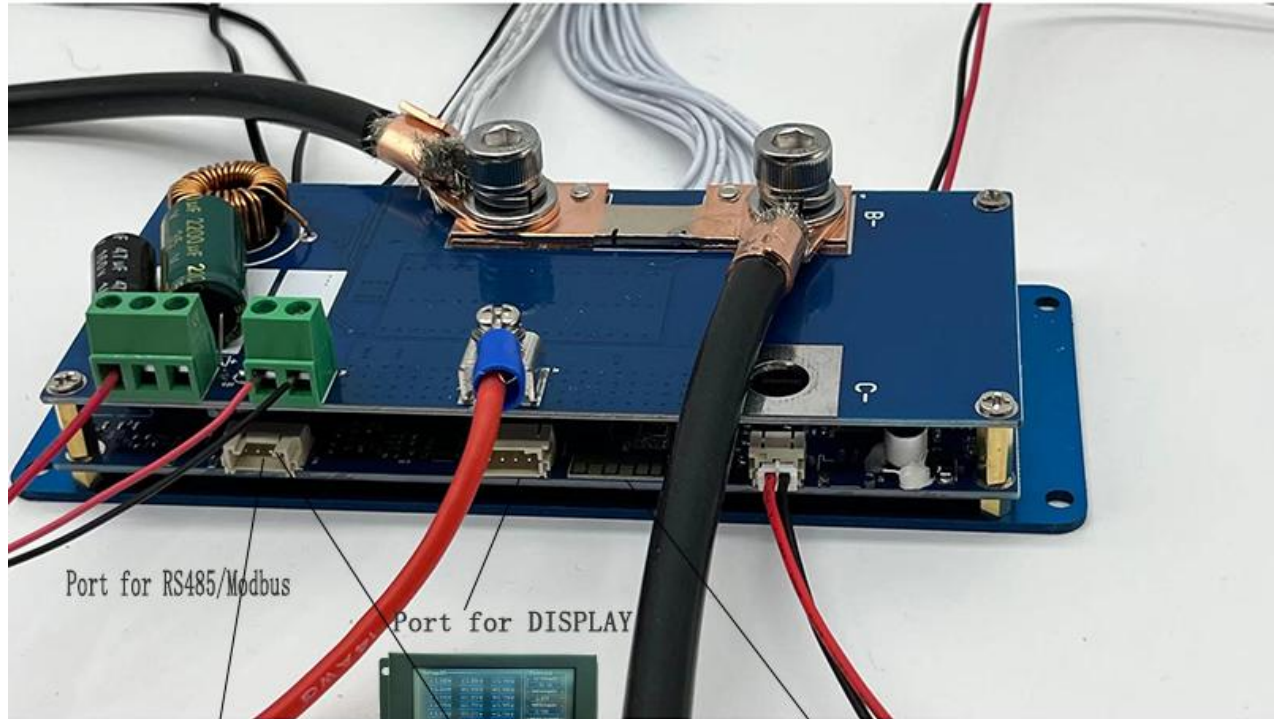
Aliexpress website: <https://www.aliexpress.com/store/4687150>

Email: 66057580@qq.com; Skype ID: live:.cid.8a15dc87c5ffe40c

**TOPBMS**

# BMS Communication Ports Description

Email: 66057580@qq.com



Port for RS485/Modbus

Port for DISPLAY

Built-In B/T



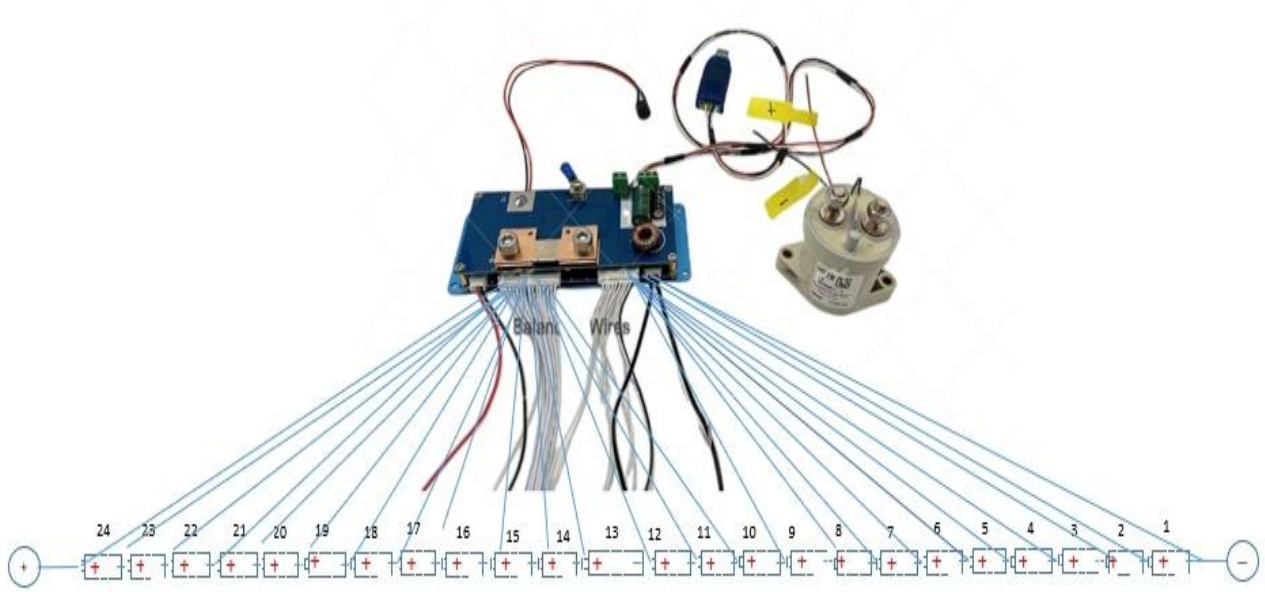
RS485/Modbus Master Computer



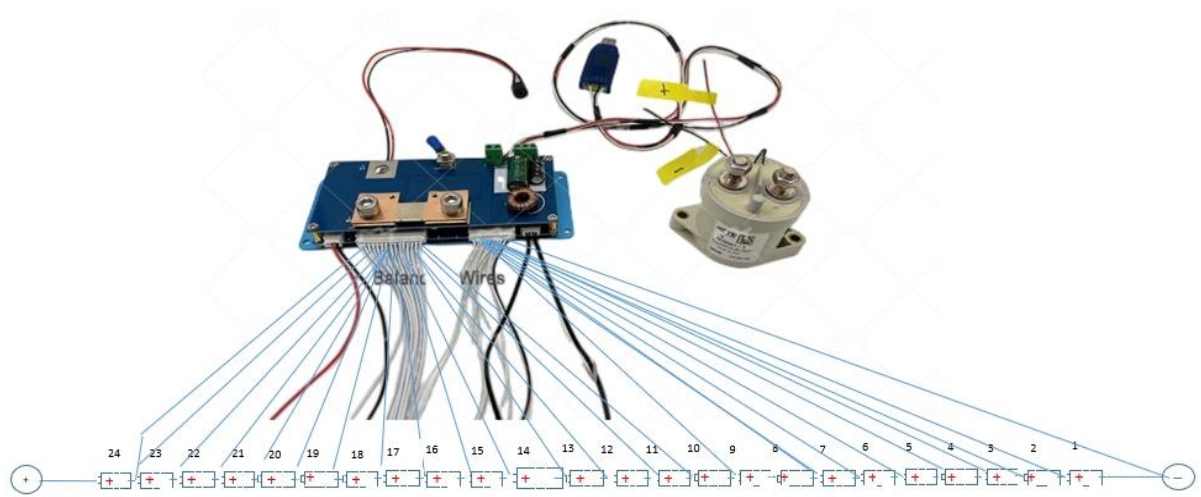
RS485 to USB cable



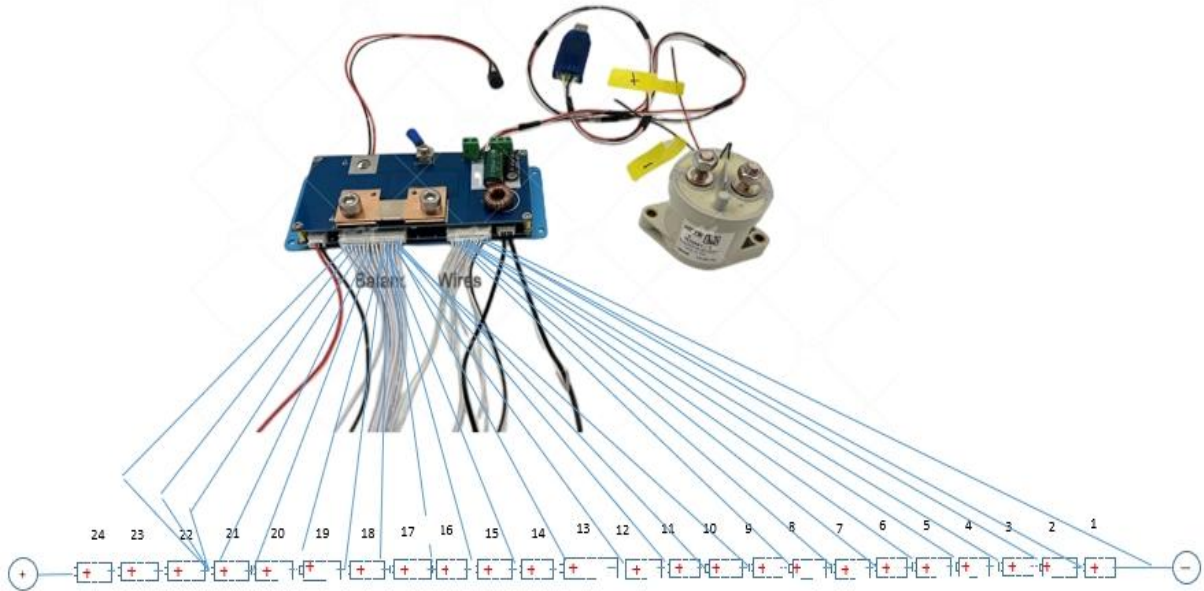
Phone APP



Wiring Diagram of BMS 24S



Wiring Diagram of BMS 24S is changed to BMS 23S



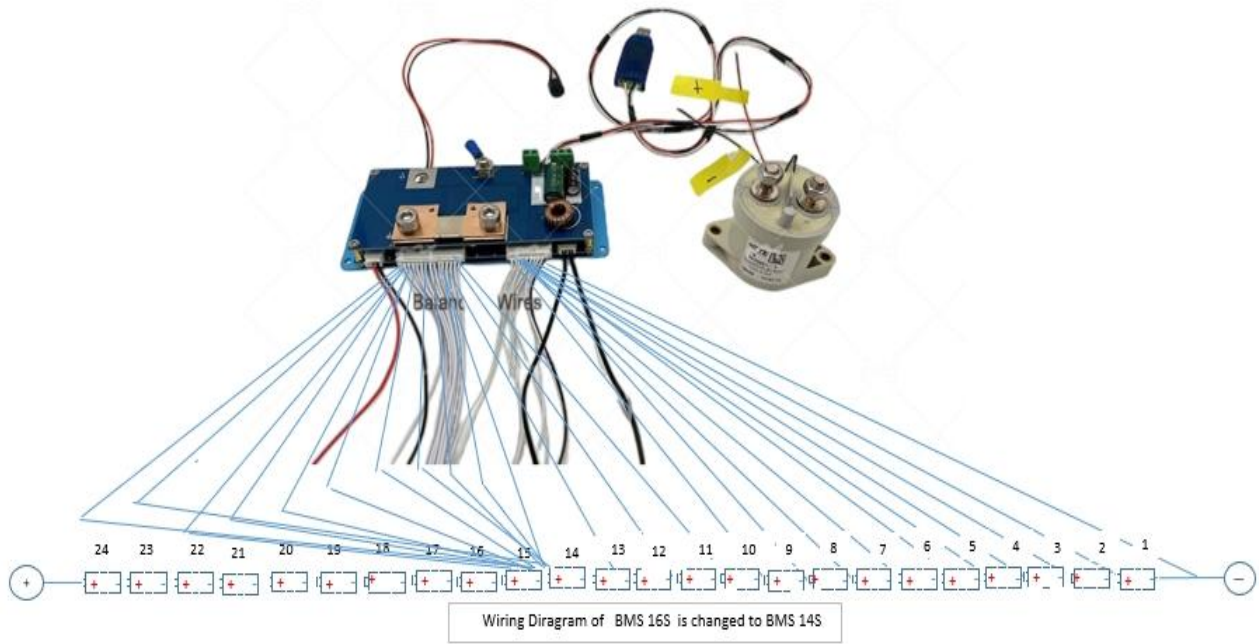
Wiring Diagram of BMS 24S is changed to BMS 21S

**TOPBMS**

Official website: [www.cleverbms.com](http://www.cleverbms.com) ; Wechat: +8617841591535

Aliexpress website: <https://www.aliexpress.com/store/4687150>

Email: 66057580@qq.com; Skype ID: live:.cid.8a15dc87c5ffe40c



**四 Parameters Sheet**

TOPBMS 3S-32S BMS 200A-500A						
L*W*H 165*65*35mm						
功能	项目	功能	Voltage			Comment
		Batteries Type	Li-ion (3.7V)	LiFePo4 (3.2V)	LTO (2.3V)	
Over Voltage Protection	Level 1 Charging Protection	1500mV-4500mV	4200mV	3650mV	2800mV	Level 1 protection Voltage
	Level 2 Charging Protection	2950mV-4800mV	4300mV	3750mV	2950mV	Level 2 Protection voltage shall be set larger than Level 1 protection Voltage
	Over-charging Protection Delay Time	4S-10S				
	Over-charging Protection Recovery <u>Volatge</u>		4100mV	3550mV	2700mV	充电恢复设置电压必须小于充电保护电压 Over-charging Protection recovery Voltage shall be set smaller than Level 1 protection Voltage
Under Voltage Protection	Level 1 Discharging Protection	1500mV-4500mV	2750mV	2500mV	1800mV	
	Level 2 Discharging Protection		2500mV	2250mV	1600mV	Level 2 discharging protection shall be set smaller Level 1
	Over-discharging Protection Delay Time	4S-10S				
	Over-discharging Protection Recovery <u>Volatge</u>		3100mV	2900mV	2200mV	Over-discharging Protection Recovery Voltage shall be set larger than Level 1 Discharging Protection Voltage
High Temperature Protection	Power Module of BMS		90°C			
	Balancing Module of BMS		70°C			
			65°C			
High Temperature Protection Recovery	Power Module of BMS		85°C			
	Balancing Module of BMS		65°C			
	Batteries		60°C			
Low Temperature Protection		-30degree Max				MANUAL SET
Low Temperature Protection Recovery		-10degree Max				MANUAL SET
Current	Charging Current	0-500A				For example :If you order <u>bms</u> 40A , you can set the max value of charging current to 40A
	Continuous discharging current	0-500A				For example :If you order <u>bms</u> 40A , you can set the max value of discharging current to 40A
	Peak discharging current	600-1500A				For example :If you order <u>bms</u> 40A , you can set the max value of peak current to 120A
Balancing	Balancing start Volt	1000mV-4300mV	4100mV	3400mV	2600mV	
	Voltage Diff	1-30mV	20mV	20mV	20mV	
	Balancing Current	2-40mA	40mA	40mA	40mA	
Voltage acquisition resolution		5mv				
Temp Acquisition Tolerance		1-5%				
SOC Acquisition Tolerance		1-10%				
BMS Communication	Bluetooth					
	485-1					The port for charger with RS485
	485-2					The port for PC
	CAN					Not Applicable
Consumption	BMS +Bluetooth	2.5mA				
	BMS+CAN	7.5mA				
	Sleep Mode	50uA				
供电		20V-150V				电池组供电

**TOPBMS**

Official website: [www.cleverbms.com](http://www.cleverbms.com) ; Wechat: +8617841591535

Aliexpress website: <https://www.aliexpress.com/store/4687150>

Email: 66057580@qq.com; Skype ID: live:.cid.8a15dc87c5ffe40c

## STEP1 Start Up of BMS and Relay

After you enter the phone app, please go to the button "SET" and then set the correct batteries capacity and cell series in the app.



**TOPBMS**

Official website: [www.cleverbms.com](http://www.cleverbms.com) ; Wechat: +8617841591535

Aliexpress website: <https://www.aliexpress.com/store/4687150>

Email: 66057580@qq.com; Skype ID: live:.cid.8a15dc87c5ffe40c

# Step 2: How to Set Discharging /Charging

## Charging Setting:

Please make sure to set charging current larger than actual one in the charging settings

## Discharging Setting :

Please make sure to set discharging current larger than the actual one in the discharging settings;  
Discharging over current is 2 times larger than discharging current

Attention: the bms will be dead if the set discharging/charging is less than actual one !!



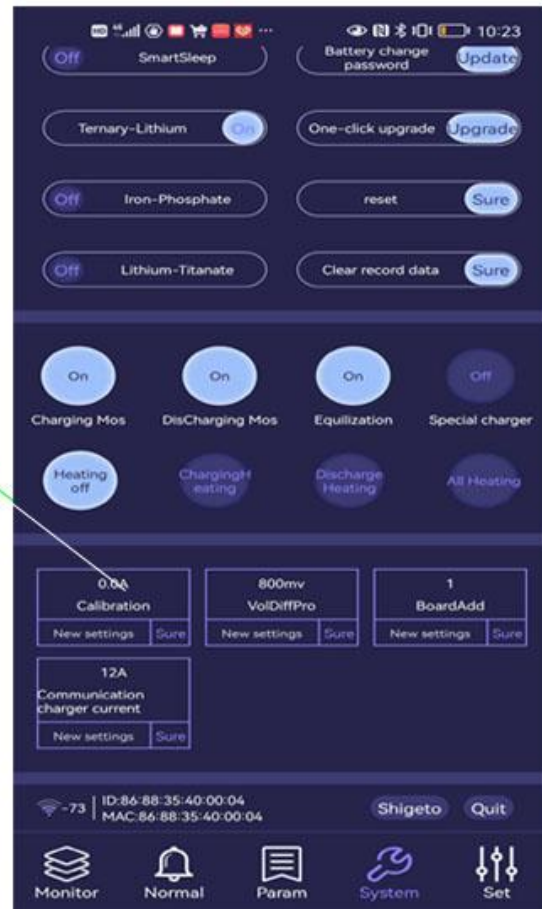


## Step 3.1

### Current Calibration-1

In the begining.The BMS and relay can't work without the loading and without *current calibration*;

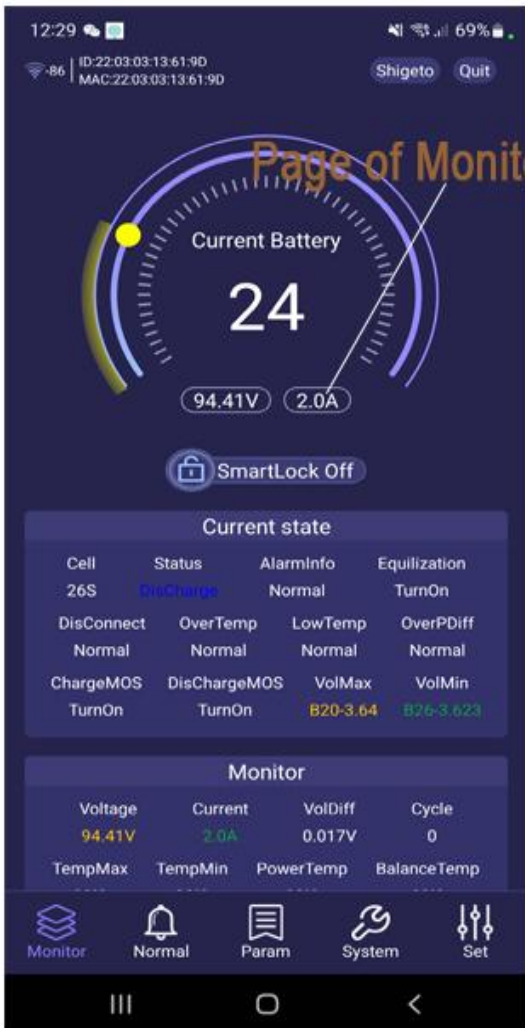
Please set the correct discharging current in the *current calibration* after connect loading;Afterwards, the BMS and relay works



## Step 3.2

# Current Calibration-2

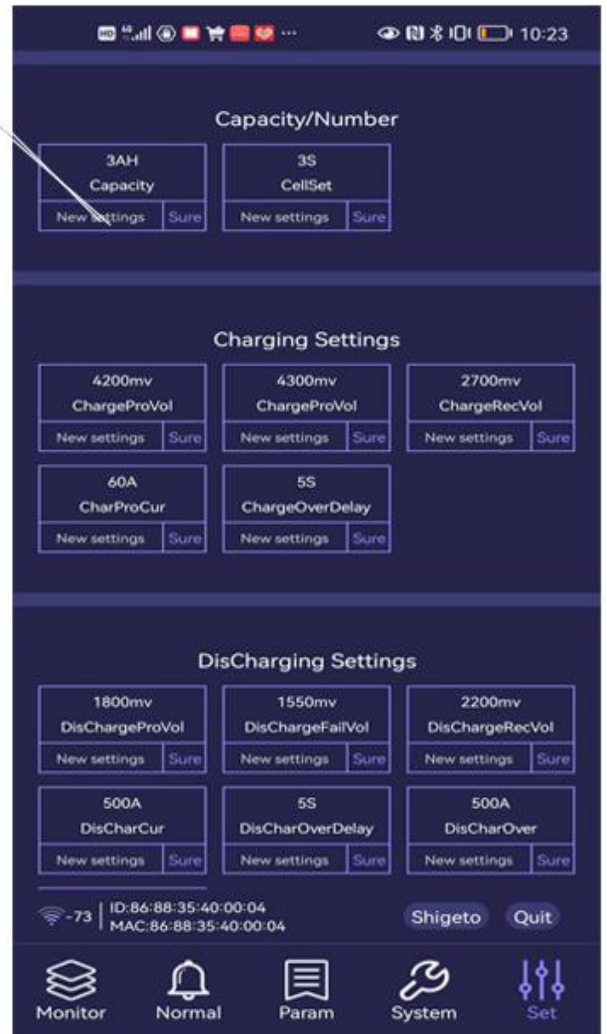
Enter 2A in calibration and check if page of “monitor” shows 2A;  
If yes, the calibration is completed successfully



Attention:you can enter 2~more in the calibration

# STEP 4 SOC Calibration

Set the actual capacity of the batteries pack in the phone APP ,and Discharge the batteries to under-voltage protection and then Charge batteries to the over voltage protection and then SOC can be corrected and calibrated





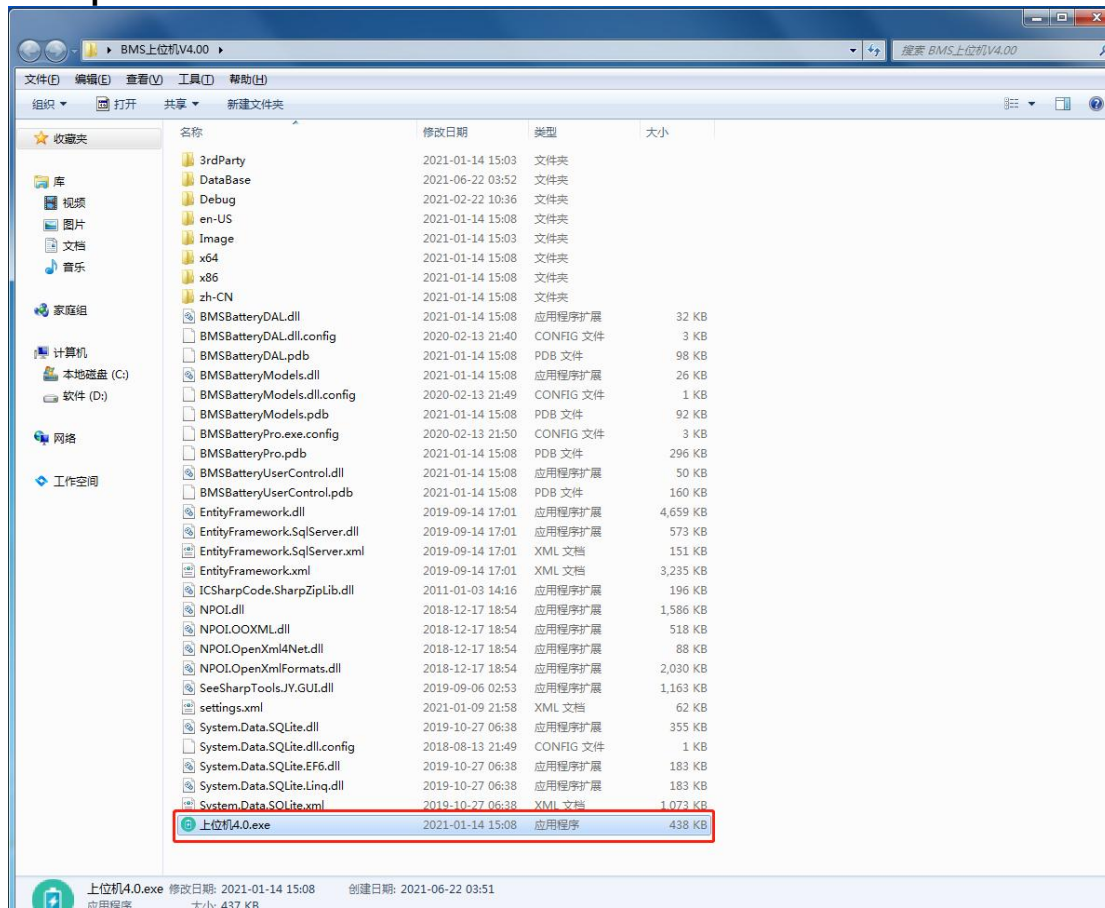
Official website: [www.cleverbms.com](http://www.cleverbms.com) ; Wechat: +8617841591535

Aliexpress website: <https://www.aliexpress.com/store/4687150>

Email: 66057580@qq.com; Skype ID: live:.cid.8a15dc87c5ffe40c

# PC Software Instruction OF BMS talk to PC

## Step1 : PC Software Installation





Official website:www.cleverbms.com ; Wechat:+8617841591535

Aliexpress website: https://www.aliexpress.com/store/4687150

Email:66057580@qq.com; Skype ID: live:.cid.8a15dc87c5ffe40c

## Step2 : Select the correct Port

BMS Lithium Battery Management System

The screenshot shows the BMS Lithium Battery Management System interface. On the left sidebar, there are controls for PortNo (COM4), DevNo (1), a Connect button, language selection (English), and a battery status indicator showing 0% remain, 0V voltage, and 7A current. Below these are fields for MacCode (342589975), BlueTooth (26541C98068E), and Factory (2012年12月31日). The top navigation bar includes Monitor, Alarm, Param, Normal, DLoad, Graph, Update, and LeaseSet. The main content area is split into two sections: 'Battery Info' and 'Battery Operation'. 'Battery Info' displays parameters like CapacitySet (20 ah), CellSet (14 C), CurrentPercent (50 %), LowCapacity (0 %), BalAccuracy (20 mv), DisCharCapacity (0 ah), BalanceVol (3800 mv), and CalibrationCapacity (0 ah). 'Battery Operation' features buttons for Ternary-Lithium, Iron-Phosphate, and Lithium-Titanate, along with ReStart, Reset, and Modify buttons. Below these are control indicators for Charge MOS, Discharge MOS, Equalization, Special Charger, HeaterClose, ChargeHeater, DisChargeHeater, and AllHeater, each with a corresponding status indicator (green or grey).



Official website:www.cleverbms.com ; Wechat:+8617841591535

Aliexpress website: <https://www.aliexpress.com/store/4687150>

Email:66057580@qq.com; Skype ID: live:.cid.8a15dc87c5ffe40c

Step3 : The address " 1 " cannot be changed. After this, press the botton "Connect"

The screenshot displays the TOPBMS-V1 software interface. On the left, there is a control panel with a 'Connect' button, a language dropdown menu (set to English), and a battery icon. Below the battery icon, it shows 'Remain: 00.0 %', 'Voltage: 0.000 V', and 'Current: 0.000 A'. At the bottom left, there are input fields for 'MacCode: 00000000', 'BlueTooth: 00000000', and 'Factory: 2000-01-01'. The main area is divided into several sections: 'BasicInfo' with fields for VolMax, VolMin, TempMax, PowerTem, and Temp; 'StatusInfo' with various status indicators like Stand, DisConnect, DisChaPro, ChargePro, OverTemp, LowTemp, ChargeMOS, DisChaMOS, OverPDif, and Balance; and 'Cell-Voltage (V)' showing a grid of 24 cells, all displaying 0.000 V. The bottom status bar shows 'Software: V4.10', 'Firmware: V4.10', 'System Time: 2022-02-16 15:54:00 Wednesday', and 'Password Status: [lock icon]'.



Official website:www.cleverbms.com ; Wechat:+8617841591535

Aliexpress website: https://www.aliexpress.com/store/4687150

Email:66057580@qq.com; Skype ID: live:..cid.8a15dc87c5ffe40c

Step 4: According to different customers ,the PC software has English and Chinese version ; The monitoring can be used to check the data of each cell, battery situation

The screenshot displays the TOPBMS PC software interface. On the left, there are controls for serial port (COM3), station address (1), a disconnect button, and a language selection menu with options for Chinese and English. Below these are gauges for remaining charge (90%), total voltage (80.78 V), and total current (0 A). The main area is divided into 'Basic Information' and 'Status Information' panels. The 'Basic Information' panel shows maximum voltage (4.06 V), minimum voltage (4.022 V), maximum temperature (26 °C), and power board temperature (26 °C). The 'Status Information' panel shows battery status (standby), discharge protection (normal), and charging MOSFET (on). At the bottom, a 'Cell Voltage (V)' grid shows 20 individual cell voltages, with cell 3 highlighted in red (4.06 V) and cell 14 highlighted in blue (4.022 V). The system status bar at the very bottom shows the current time as 2021-06-22 04:00:24 on a Tuesday.

基本信息				状态信息				
最高电压	4.06 V	B3	单体压差	0.0380 V	电池状态	待机	电池掉线状态	正常
最低电压	4.022 V	B14	循环次数	0 T	放电保护失效	正常	充电保护失效	正常
最高温度	26 °C		最低温度	0 °C	电池超温状态	正常	电池低温报警	正常
功率板温度	26 °C		均衡板温度	23 °C	充电MOS管	开启	放电MOS管	开启
电池温度	0°C 0°C 24°C 24°C			电池压差过大	正常	均衡状态	开启	

单体电压 (V)							
1	2	3	4	5	6	7	8
4.037	4.039	4.06	4.058	4.054	4.054	4.054	4.054
9	10	11	12	13	14	15	16
4.058	4.026	4.031	4.029	4.028	4.022	4.026	4.026
17	18	19	20				
4.026	4.026	4.028	4.052				

Step 5: if you want to set the parameters, please enter password :123456

The screenshot displays the TOPBMS software interface. At the top, there are navigation tabs: 数据监控 (Data Monitoring), 报警信息 (Alarm Information), 参数设置 (Parameter Settings), 常规设置 (General Settings), 批量生产 (Batch Production), 图表分析 (Chart Analysis), 固件更新 (Firmware Update), and 租赁设置 (Leasing Settings). The main interface is divided into several sections:

- Left Panel:** Contains connection settings (串口号: COM3, 站地址: 1), a disconnect button, language selection (中文), and a battery icon. Below this are gauges for 剩余电量 (90%), 总电压 (80.78 V), and 总电流 (0 A).
- Top Section:** Divided into 基本信息 (Basic Information) and 状态信息 (Status Information).
  - 基本信息:** Lists parameters such as 最高电压 (4.06 V), 最低电压 (4.022 V), 最高温度 (26 °C), 功率板温度 (26 °C), 最低电压差 (0.0380 V), 循环次数 (0), 最低温度 (0 °C), and 均衡板温度 (23 °C).
  - 状态信息:** Shows various status indicators like 电池状态 (待机), 放电保护失效 (正常), 电池超温状态 (正常), 充电MOS管 (开启), etc.
- Center Section:** A 4x4 grid of battery cells, each with a voltage reading. Cell 14 is highlighted in blue.
- Bottom Panel:** Displays 机器编码 (1607224509), 蓝牙地址 (868835400068), 出厂日期 (2021年6月19日), and system information including 上位机版本 (V4.00), 固件版本 (V1.9), and 系统当前时间 (2021-06-22 04:01:02 星期二).

A 密码验证 (Password Verification) dialog box is overlaid in the center, prompting the user to enter a password. The input field contains asterisks, and the 确定 (Confirm) button is highlighted with a red box.



Step6 :Enter data to be set to confirm the modification. The modification is successful





Official website:www.cleverbms.com ; Wechat:+8617841591535

Aliexpress website: https://www.aliexpress.com/store/4687150

Email:66057580@qq.com; Skype ID: live:.cid.8a15dc87c5ffe40c

Step7 In the "Normal;No of battery in series can be set based on the actual situation ; In the meanwhile, according to the battery properties you can select the protection mode

BMS Lithium Battery Management System

PortNo: COM4  
DevNo: 1  
Connect  
English

Remain: 0 %  
Voltage: 0 V  
Current: 7 A

MacCode: 342589975  
BlueTooth: 26541C98068E  
Factory: 2012年12月31日

Monitor Alarm Param **Normal** DLoad Graph Update LeaseSet

**Battery Info**

CapacitySet:	20	ah	CellSet:	14	C
CurrentPercent:	50	%	LowCapacity:	0	%
BalAccuracy:	20	mv	DisCharCapacity	0	ah
BalanceVol:	3800	mv	CalibrationCapacity	0	ah

**Battery Operation**

Ternary-Lithium ReStart  
Iron-Phosphate Reset  
Lithium-Titanate Modify

Charge MOS: Discharge MOS: Equalization: Special Charger:  
HeaterClose: ChargeHeater: DisChargeHeater: AllHeater:

Setting of CELL in series



Official website:www.cleverbms.com ; Wechat:+8617841591535

Aliexpress website: https://www.aliexpress.com/store/4687150

Email:66057580@qq.com; Skype ID: live:.cid.8a15dc87c5ffe40c

## Step 8: you can set the protection parameters you expect

BMS Lithium Battery Management System

Monitor Alarm Param Normal DLoad Graph Update LeaseSet

### Mass Production ParamSet

Parameter	Actual	Set	Result
Charge-Pro (mv) :	4350		
Charge-Pro (mv) :	4200		Open
Charge-Rec (mv) :	4150		
Charge-Pro (A) :	40		
Discharge-Fail-Pro (mv) :	2550		
Discharge-Pro (mv) :	2750		
Discharge-Pro (A) :	80		
Balance Voltage (mv) :	3800		
Capacity (AH) :	20		
Cell-Set (Cell) :	14		
PasswordSet:	123456		
BlueToothName:		Set	
Bluetooth-Reading:	0		Read

Connect

English

Remain: 0 %

Voltage: 0 V

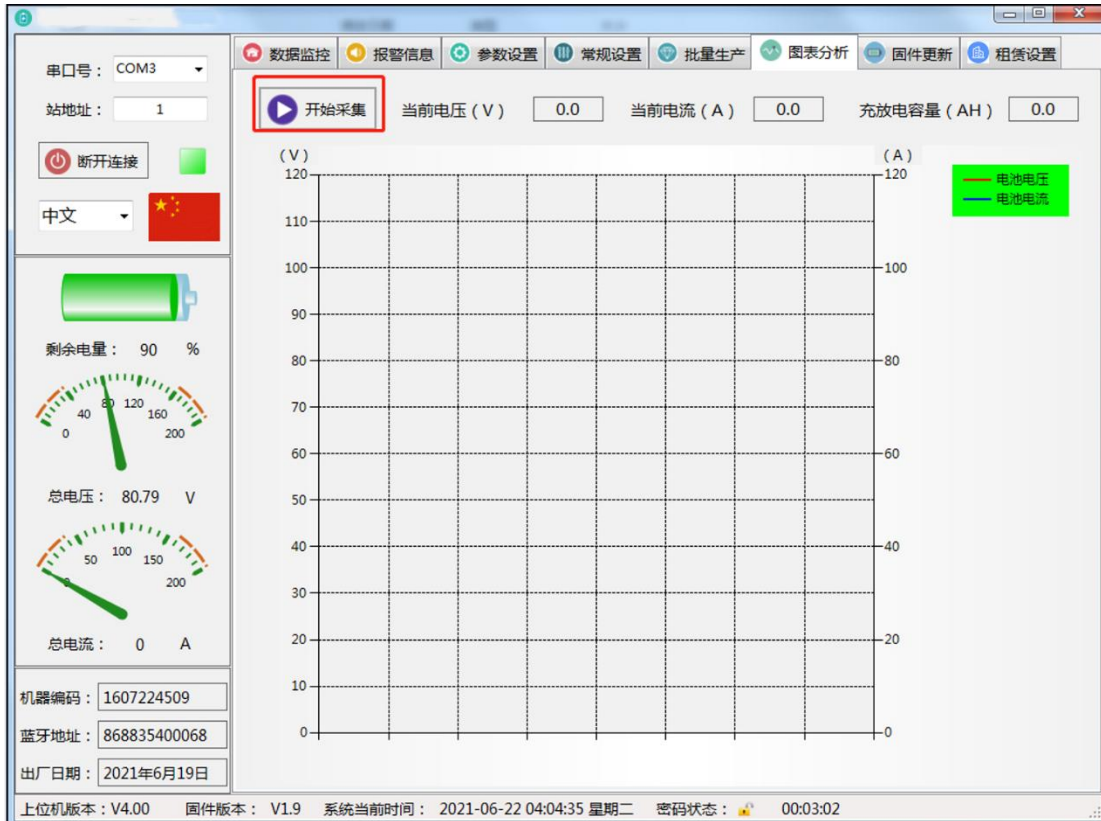
Current: 7 A

MacCode: 342589975

BlueTooth: 26541C98068E

Factory: 2012年12月31日

## Step9: You can view the voltage curve and current curve



## Step 10 Firmware can be updated for one-key

The screenshot displays the TOPBMS software interface, which is used for monitoring and controlling a battery management system. The interface is divided into several sections:

- Left Panel:** Contains system status information including the serial port (COM3), station address (1), a disconnect button, language selection (Chinese), and battery status (90% remaining, 80.79V total voltage, 0A total current).
- Top Menu:** Includes options for Data Monitoring, Alarm Information, Parameter Settings, Normal Settings, Mass Production, Graph Analysis, Firmware Update, and Rental Settings.
- Firmware Update Process (Main Area):** Shows a sequence of steps: STEP 1: Select firmware file (with a 'File Selection' button), STEP 2: Send restart command (with a 'One-Click Update' button), STEP 3: Baud9.6K connection, STEP 4: Send 0x20 command, STEP 5: Send 0x31 command, STEP 6: Normal return 0x43, and STEP 7: Send firmware information. It also features input fields for 'Burn Segment' and 'Total Length' (both set to 0), a large red circular progress indicator, and a timer showing '00:00:00' for the update duration.
- Other Settings (Bottom Area):** Includes fields for 'Current Calibration' (0 A), 'Protection Board Address' (1), and 'Voltage Protection Value' (800 mv), along with a 'One-Click Sleep' button.
- Bottom Status Bar:** Displays system information such as '上位机版本: V4.00', '固件版本: V1.9', '系统当前时间: 2021-06-22 04:05:16 星期二', '密码状态: [lock icon]', and '00:03:43'.